

Application No.: 10/528,307
Amendment Dated: November 14, 2007
Reply to Office Action of: August 14, 2007

MAT-8654US

Remarks/Arguments:

The present invention relates to a digital broadcast receiving apparatus for receiving time division multiplexed programs. Specifically, the received electric field strength is detected and packet errors are measured to improve the performance of the receiver.

On page 2 of the Office Action, claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable by Akira (JP 04-090220) in view of Hiroaki (JP 2001-168748). Furthermore, on page 3 of the Office Action, claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable by Akira in view of Chang (US 5,692,019). It is respectfully submitted, however, that the claims are patentable over the art of record for the reasons set forth below.

Akira teaches a selective antenna diversity receiver that receives a time division signal. Specifically, Akira teaches switching between two antennas in response to measuring their electric field level. Hiroaki teaches a digital signal receiver for fluctuating input signals. Specifically, Hiroaki teaches controlling the operation start point of a variable gain circuit. Chang teaches an communication system having antenna switch diversity. Specifically, Chang teaches an automatic gain control circuit in the receiver.

Applicants' invention, as recited by claim 1, includes a feature which is neither disclosed nor suggested by the art of record, namely:

... operation starting point controlling circuit that varies an operation starting point of a variable gain circuit in response to the detected electrical field strength and the measured errors in the received data packets ...

Claim 1 relates to a receiving apparatus which includes a variable gain circuit. The operation start point of this variable gain circuit is controlled in response to both the detected field strength from an antenna and the measured errors in the received data packets. This feature is found in the originally filed application on page 14 line 15, to page 15 line 23 and furthermore in figure 4. No new matter has been added.

- In Akira's abstract and Fig. 1, Akira teaches a receiver that measures the electric field level of two antennas (antenna 11 and antenna 12). Switching control circuit 18 then controls switch 13 to select the antenna which has the best reception state (strongest electric field).

In Hiroaki's abstract and Fig. 1, Hiroaki teaches a digital signal receiver which controls the operation start point of variable gain circuit 2.

In Chang's Fig. 1, Chang shows an automatic gain control (AGC) 446.

Applicants' teachings are different than Akira, Hiroaki and Chang, because the addition of varying the operation starting point of a variable gain circuit in response to detected electric field strength **and measured errors in received data packets** as recited in claim 1 ("*operation starting point controlling circuit that varies an operation starting point of a variable gain circuit in response to the detected electrical field strength and the measured errors in the received data packets*"). Controlling the operation starting point by both detected electric field strength and measured errors in the received data packets, provides the receiver with the ability to detect if the electric field is produced by an unwanted interference wave. For example, if the detected electric field strength is high and the measured errors are low, then the system determines that an interfering wave is not present. In another example, however, if the detected electric field strength is high and the measured errors are also high, then the system determines that an interfering wave is present. This feature is disclosed on page 14 line 15, to page 15 line 23 of the specification ("*In the case that signal F indicates a packet error ratio worse than the predetermined value even when output C of electric field strength detecting circuit 145 indicates electric field strength large enough, it is judged that a high interference wave exists in the vicinity. Operation start point controlling circuit 135 then adds a DC offset*"). Further support can be found in Fig.4 as elements 132, 135, 145 and 150. In contrast, Akira only teaches measuring the electric field strength, which does not provide the ability to determine if the electric field is produced by an interfering wave.

Application No.: 10/528,307
Amendment Dated: November 14, 2007
Reply to Office Action of: August 14, 2007

MAT-8654US

It is because Applicants include the feature of "operation starting point controlling circuit that varies an operation starting point of a variable gain circuit in response to the detected electrical field strength and the measured errors in the received data packets", that the following advantages are achieved. An advantage is the ability to determine if the detected electric field is corrupted by an interfering wave. Accordingly, for the reasons set forth above, claim 1 is patentable over the art of record.

Claim 2 includes all the features of claim 1 from which it depends. Thus, claim 2 is also patentable over the art of record for the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

Lawrence E. Ashery, Reg. No. 34,515
Attorney for Applicants

RAE/rae/fp

Dated: November 14, 2007

P.O. Box 980
Valley Forge, PA 19482-0980
(610) 407-0700

FP_188209